



SYSTEM AND METHOD FOR EMBEDDED PROCESSOR FIRMWARE DEVELOPMENT

Dan M. White  
Appl. No. 10/748,427  
Replacement Sheet

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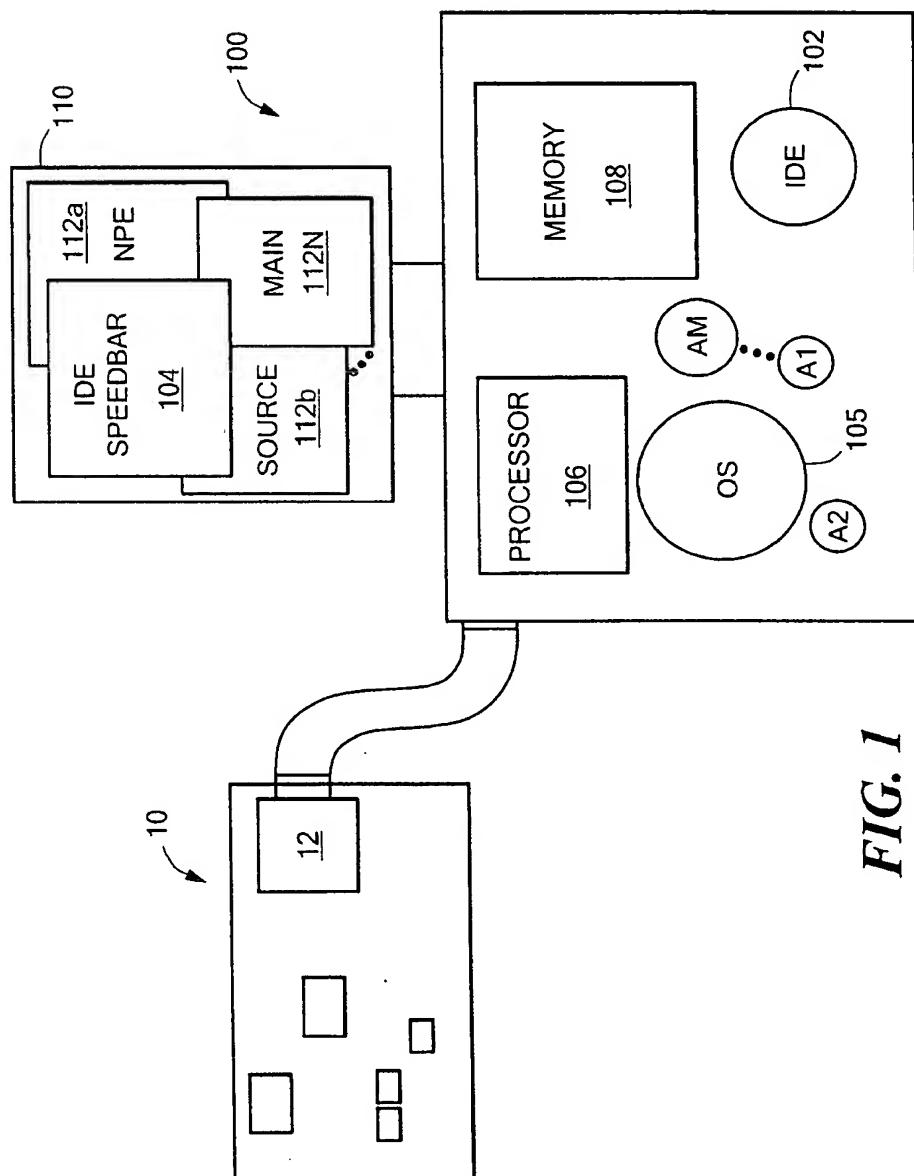


FIG. 1

# SYSTEM AND METHOD FOR EMBEDDED PROCESSOR FIRMWARE DEVELOPMENT

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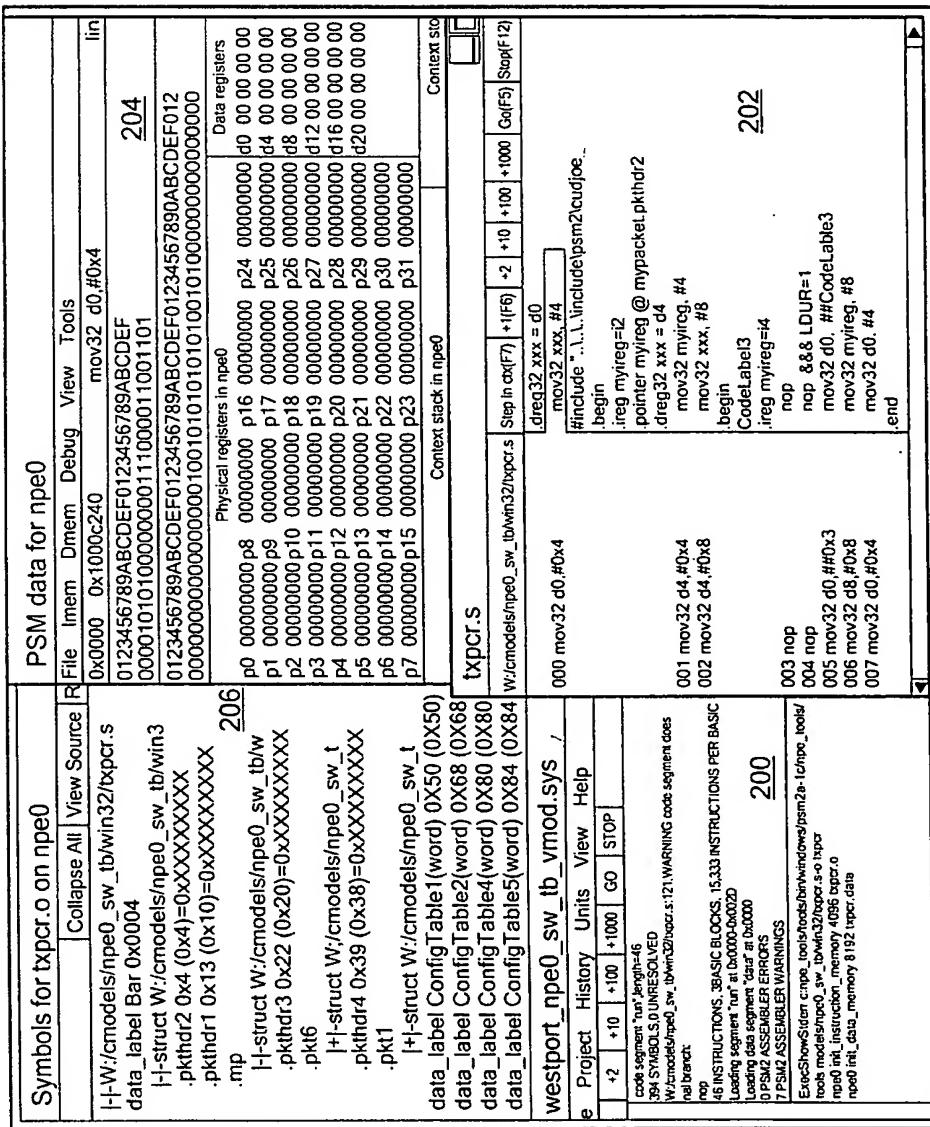
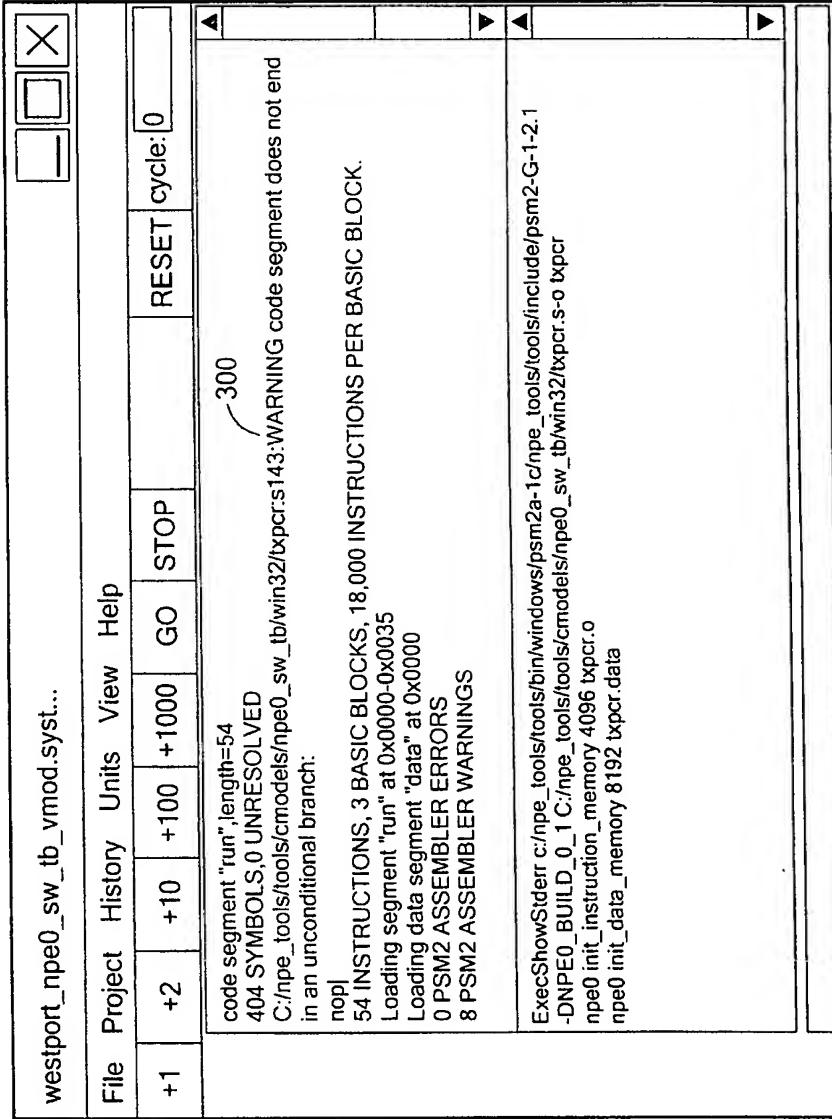


FIG. 2

SYSTEM AND METHOD FOR EMBEDDED PROCESSOR FIRMWARE DEVELOPMENT  
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westport\_npe0\_sw\_tb\_vmod.syst...

File Project History Units View Help

+1	+2	+10	+100	+1000	GO	STOP	RESET	cycle: 0
----	----	-----	------	-------	----	------	-------	----------

code segment "run", length=54  
404 SYMBOLS, 0 UNRESOLVED  
C:/npe/tools/tools/cmmodels/npe0\_sw\_tb/win32/txpcr:s143:WARNING code segment does not end  
in an unconditional branch:  
nop  
54 INSTRUCTIONS, 3 BASIC BLOCKS, 18,000 INSTRUCTIONS PER BASIC BLOCK.  
Loading segment "run" at 0x00000-0x0035  
Loading data segment "data" at 0x0000  
0 PSM2 ASSEMBLER ERRORS  
8 PSM2 ASSEMBLER WARNINGS

300

ExecShowStderr c:/npe/tools/tools/bin/windows/psm2a-1c/npe\_tools/include/psm2-G-2.1  
-DNPE0\_BUILD\_0\_1 C:/npe/tools/cmmodels/npe0\_sw\_tb/win32/txpcr.s-0 txpcr  
npe0 init\_instruction\_memory 4096 txpcr.o  
npe0 init\_data\_memory 8192 txpcr.data

FIG. 3

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txpcr.s
W:\cmodels\npe0_sw_tb\win32\txpcr.s Step in ctx (F7)+1 (F6)+2 +10 +100+1000 Go (F5) Stop (F12) Close
|.dreg32 xxx = d0
    mov32 xxx, #4
    #include "..\..\include\psm2\cudjoe_A_psm.h"
begin
    .ireg myireg=i2 ← 406
    pointer myireg @ mypacket.pktfd12 ← 418
    dreg32 xxx = d4
    mov32 myireg, #41 ← 410
    mov32 xxx, #8
begin
    .begin
        CodeLabel3 ← 414
        .ireg myireg=i4 ← 408
        nop
        nop && LDUR=1
        mov32 d0, ##CodeLabel3
        mov32 myireg, #8 ← 412
        mov32 d0, #4
    .end
    .end
    nop && LDUR=1
    mov32 d0, ##ConfigTable2 ← 416 ; Se
    xfrmcl [i0, #0] && HSS_WrCond
    nop
    nop && LDUR=1
008 nop
009 mov32 d0, ##0x68
00A xfrmcl [i0, #0]
00B nop
00C nop

```

FIG. 4

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PSM data for psma

File	Irrem	Dmem	Debug	View	Tools			
0x000d	0x1000000b					nop		
0123456789ABCDEF0123456789ABCDEF						xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx		
0123456789ABCDEF0123456789ABCDEF0123456789ABCDEF						000000000000000011111110000000011111111110101110000000000000000		
Physical registers in psma				Data registers		Index registers		
p0 00000000	p8 00000000	p16 00000000	p24 00000000	d0 00 00 00 00	i0 0000 0000			
p1 00000000	p9 00000000	p17 00000000	p25 00000000	d4 00 00 00 00	i2 0000 0000			
p2 00000000	p10 00000000	p18 00000000	p26 00000000	d8 00 00 00 00	i4 0000 0000			
p3 00000000	p11 00000000	p19 00000000	p27 00000000	d12 00 00 00 00				
p4 00000000	p12 00000000	p20 00000000	p28 00000000	d16 00 00 00 00				
p5 00000000	p13 00000000	p21 00000000	p29 00000000	d20 00 00 00 00				
p6 00000000	p14 00000000	p22 00000000	p30 00000000					
p7 00000000	p15 00000000	p23 00000000	p31 00000000					
Context stack in psma					Context store in psma			
APCctl	StEvt	CZLdurSICxRepNext	PCJump	PCSTICK	Ctx	StEvt	St PC	Cndx
00 0	lo, 00 01 0	0 1 000	000	10 1 1	0		00, p0, p2, p4	
00 0	off, 00 00 0	0 1 000	000	10 1 1	1	off, 00 000	00 p0 p2 p4	
00 0	off, 00 00 0	0 1 000	000	10 1 1	2	off, 00 000	00 p0 p2 p4	
00 15	lo, 00 00 0	15 0 000	000	00 1 1	3	off, 00 000	00 p0 p2 p4	
PSM control bits: <input checked="" type="checkbox"/> IF <input checked="" type="checkbox"/> IE <input checked="" type="checkbox"/> SCH <input checked="" type="checkbox"/> SO					4	off, 00 000	00 p0 p2 p4	
					5	off, 00 000	00 p0 p2 p4	
					6	off, 00 000	00 p0 p2 p4	
					7	off, 00 000	00 p0 p2 p4	
					8	off, 00 000	00 p0 p2 p4	
					9	off, 00 000	00 p0 p2 p4	
					10	off, 00 000	00 p0 p2 p4	
					11	off, 00 000	00 p0 p2 p4	
					12	off, 00 000	00 p0 p2 p4	
					13	off, 00 000	00 p0 p2 p4	
					14	off, 00 000	00 p0 p2 p4	
					15	off, 00 000	00 p0 p2 p4	

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**FIG. 5**

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Symbols for txpcr.o on npe0

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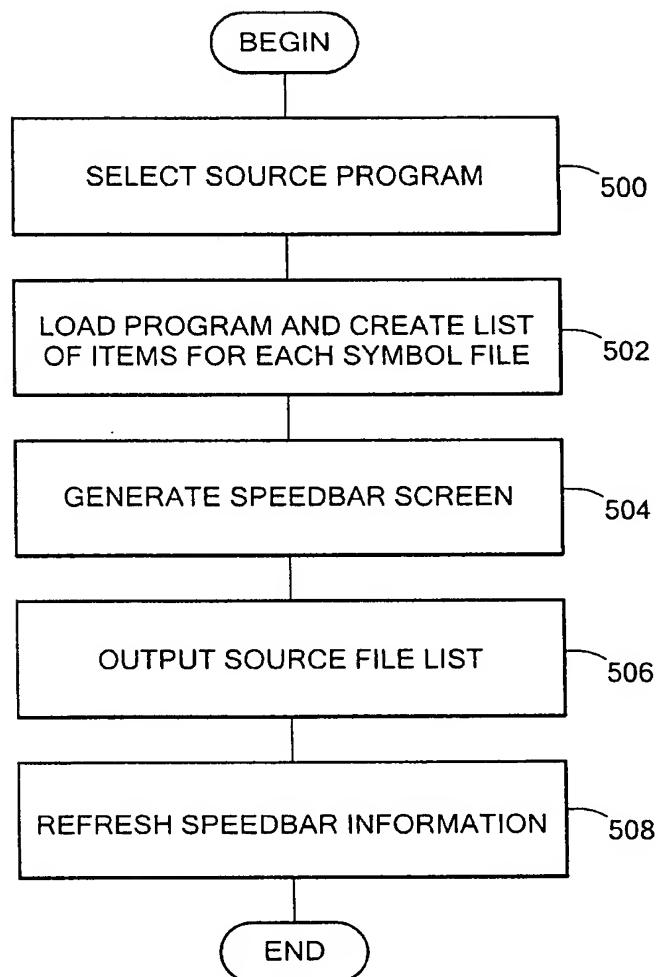
|-W:/cmodels/npe0_sw_tb/win32/txpcr.s
data_label Bar 0x0004
|-struct W:/cmodels/npe0_sw_tb/win32/txpcr.s:mypacket 76 4
.pkthdr2 0x4 (0x4)=0xXXXXXXXX
.pkthdr1 0x13 (0x10)=0xXXXXXXXX
.mp
|-struct W:/cmodels/npe0_sw_tb/win32/txpcr.s:mypacket1 46 4
.pkthdr3 0x22 (0x20)=0xXXXXXXXXXX
.pkt6
|+|-struct W:/cmodels/npe0_sw_tb/win32/txpcr.s:p3 8 4
.pkthdr4 0x39 (0x38)=0xXXXXXXXXXX
.pkt1
|+|-struct W:/cmodels/npe0_sw_tb/win32/txpcr.s:p3 8 4
data_label ConfigTable1(word) 0X50 (0X50)=0xFFFFFFFF
data_label ConfigTable2(word) 0X68 (0X68)=0xFFFFFFFF
data_label ConfigTable91(*) (word) 0X0 (0X0)=0X20
data_reg xxx d0(word) (d0)=00 00 00 00
data_reg region53.xxx d4(word) (d4)=00 00 00 00 — 608
index_reg region53.region58.myireg i2 (i2)=0000 0000 — 604
index_reg region53.region58.myireg i4 (i4)=0000 0000 — 606
code_label Codelabel3=0x0003 — 600
code_label end=0x002a — 602
|+|-struct W:/cmodels/npe0_sw_tb/win32/txpcr.s:p9 4 4
|+|-struct W:/cmodels/npe0_sw_tb/win32/txpcr.s:p3 8 4
|+|-struct W:/cmodels/npe0_sw_tb/win32/txpcr.s:mypacket1 46 4
.pkthdr3 0X0
.pkt6
|+|-struct W:/cmodels/npe0_sw_tb/win32/txpcr.s:p3 8 4
.pkthdr4 0X17
.pkt1
|+|-struct W:/cmodels/npe0_sw_tb/win32/txpcr.s:p3 8 4
|+|-struct W:/cmodels/npe0_sw_tb/win32/txpcr.s:mypacket 76 4

```

**FIG. 6**

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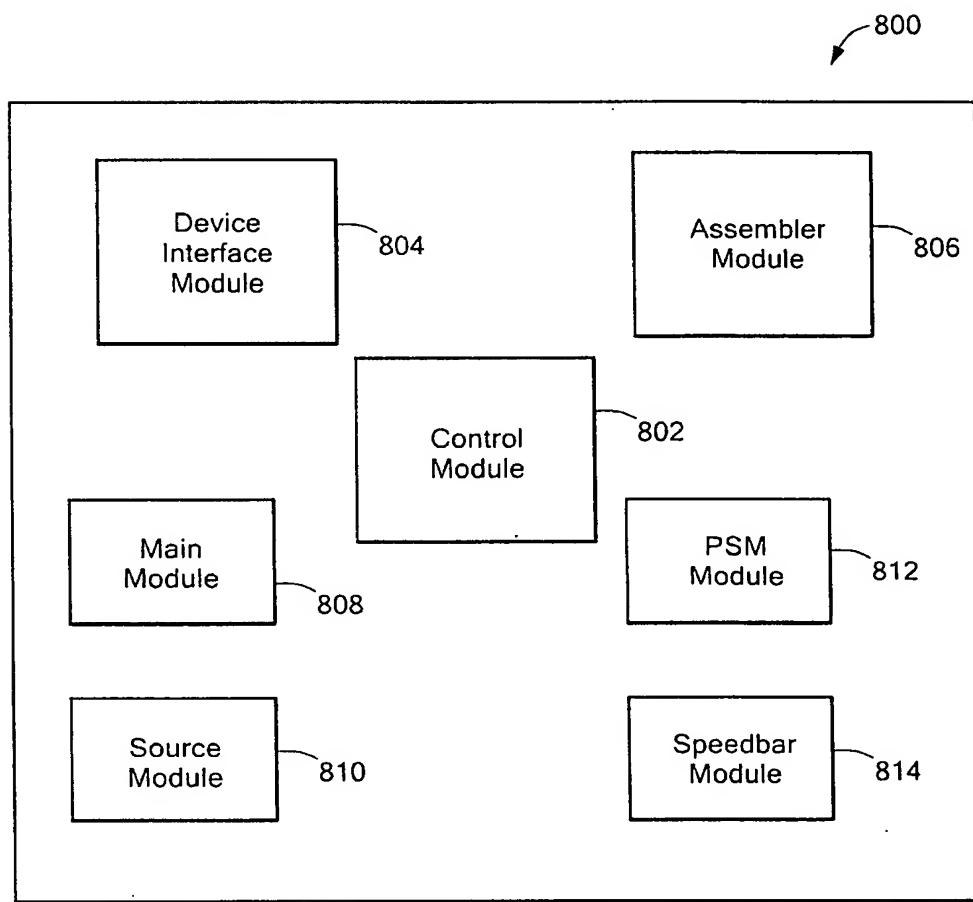
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**FIG. 7**

SYSTEM AND METHOD FOR EMBEDDED PROCESSOR FIRMWARE DEVELOPMENT  
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***FIG. 8***